Application No.: 10/076,071

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1-530 (Canceled).

531. (New) A method of treating an angiogenic disease or condition in an animal comprising administering to the animal an effective amount of a peptide having the formula:

$$P_1 - P_2,$$

wherein:

P_1 is:

$Xaa_1\ Xaa_2$ His: or

$Xaa_1\ Xaa_2$ His Xaa_3;

P_2 is $(Xaa_4)_n$;

Xaa_1 is glycine, alanine, valine, leucine, isoleucine, serine, threonine, aspartic acid, asparagine, glutamic acid, glutamine, lysine, hydroxylysine, histidine, arginine, ornithine, phenylalanine, tyrosine, tryptophan, cysteine, methionine, or α-hydroxymethylserine;

Xaa_2 is glycine, alanine, β-alanine, valine, leucine, isoleucine, serine, threonine, aspartic acid, asparagine, glutamic acid, glutamine, lysine, hydroxylysine, histidine, arginine, ornithine, phenylalanine, tyrosine, tryptophan, cysteine, methionine, or α-hydroxymethylserine;

Xaa_3 is glycine, alanine, valine, lysine, arginine, ornithine, aspartic acid, glutamic acid, asparagine, glutamine or tryptophan;

Xaa_4 is any amino acid; and

n is 0-100;

or a physiologically-acceptable salt thereof.

532. (New) The method of Claim 531 wherein:

Xaa_1 is glycine, alanine, valine, leucine, isoleucine, serine, threonine, aspartic acid, glutamic acid, lysine, hydroxylysine, histidine, arginine, or α-hydroxymethylserine, and

PAGE 3/11 * RCVD AT 7/26/2004 1:49:36 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/7 * DNIS:8729306 * CSID:3038630229 * DURATION (mm-ss):03-16

Xaa_2 is glycine, alanine, valine, leucine, isoleucine, threonine, serine, asparagine, glutamine, cysteine, methionine, lysine, hydroxylysine, histidine, arginine, or α-hydroxymethylserine.

533. (New) The method of Claim 531 wherein Xaa_1 is aspartic acid, glutamic acid, arginine, threonine or α-hydroxymethylserine.

534. (New) The method of Claim 531 wherein Xaa_2 is glycine, alanine, valine, leucine, isoleucine, threonine, serine, asparagine, methionine, histidine or α-hydroxymethylserine.

535. (New) The method of Claim 531 wherein Xaa_3 is lysine.

536. (New) The method of Claim 531 wherein:

Xaa_1 is aspartic acid, glutamic acid, arginine, lysine, threonine, serine or α-hydroxymethylserine,

Xaa_2 is glycine, alanine, valine, leucine, isoleucine, threonine, serine, asparagine, methionine, histidine or α-hydroxymethylserine, and

Xaa_3, when present, is lysine.

537. (New) The method of Claim 536 wherein Xaa_1 is aspartic acid or glutamic acid and Xaa_2 is glycine, alanine, valine, leucine, isoleucine, threonine, serine or α-hydroxymethylserine.

538. (New) The method of Claim 537 wherein Xaa_2 is glycine, alanine, valine, leucine or isoleucine.

539. (New) The method of Claim 538 wherein P_1 is Asp Ala His or Asp Ala His Lys.

540. (New) The method of Claim 539 wherein P_1 is Asp Ala His Lys.

541. (New) The method of Claim 536 wherein Xaa_1 is arginine, lysine, threonine, serine or α-hydroxymethylserine, and Xaa_2 is glycine, alanine, valine, leucine, isoleucine, threonine, serine or α-hydroxymethylserine.

542. (New) The method of Claim 541 wherein P_1 is Thr Leu His, HMS HMS His or Arg Thr His.

543. (New) The method of Claim 531 wherein n is 0-10.

544. (New) The method of Claim 543 wherein n is 0-5.

545. (New) The method of Claim 544 wherein n is 0.

546. (New) The method of Claim 531 wherein P_2 comprises a metal-binding sequence.

PAGE 4/11 * RCVD AT 7/26/2004 1:49:36 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/7 * DNIS:8729306 * CSID:3038630229 * DURATION (mm-ss):03-16

547. (New) The method of Claim 546 wherein P_2 comprises one of the following sequences:

$(Xaa_4)_m$ Xaa_3 His Xaa_2 Xaa_5,

$(Xaa_4)_m$ His Xaa_2 Xaa_5,

$(Xaa_4)_m$ Xaa_5 Xaa_2 His Xaa_3, or

$(Xaa_4)_m$ Xaa_5 Xaa_2 His,

wherein Xaa_5 is an amino acid having a free side-chain $-NH_2$ and m is 0-5.

548. (New) The method of Claim 547 wherein Xaa_5 is Orn or Lys.

549. (New) The method of Claim 546 wherein P_2 comprises one of the following sequences:

$[(Xaa_4)_mXaa_5Xaa_2HisXaa_3]_r$,

$[(Xaa_4)_mXaa_5Xaa_2His]_r$,

$[(Xaa_4)_mXaa_5Xaa_2HisXaa_3(Xaa_4)_mXaa_5Xaa_2His]_r$, or

$[(Xaa_4)_mXaa_5Xaa_2His(Xaa_4)_mXaa_5Xaa_2HisXaa_3]_r$,

wherein Xaa_5 is an amino acid having a free side-chain $-NH_2$, m is 0-5 and r is 2-100.

550. (New) The method of Claim 546 wherein P_2 comprises a sequence which binds Cu(I).

551. (New) The method of Claim 550 wherein P_2 comprises one of the following sequences:

Met Xaa_4 Met,

Met Xaa_4 Xaa_4 Met,

Cys Cys,

Cys Xaa_4 Cys,

Cys Xaa_4 Xaa_4 Cys,

Met Xaa_4 Cys Xaa_4 Xaa_4 Cys,

Gly Met Xaa_4 Cys Xaa_4 Xaa_4 Cys [SEQ ID NO:7],

Gly Met Thr Cys Xaa_4 Xaa_4 Cys [SEQ ID NO:8],

Gly Met Thr Cys Ala Asn Cys [SEQ ID NO:9], or

γ-Glu Cys Gly.

552. (New) The method of Claim 551 wherein P_2 is Gly Met Thr Cys Ala Asn Cys [SEQ ID NO:9].

PAGE 5/11 * RCVD AT 7/26/2004 1:49:36 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/7 * DNIS:8729306 * CSID:3038630229 * DURATION (mm-ss):03-16

553. (New) The method of Claim 531 wherein P_2 comprises a sequence which enhances the ability of the peptide to penetrate cell membranes, reach target tissues, or both.

554. (New) The method of Claim 553 wherein P_2 is hydrophobic or an arginine oligomer.

555. (New) The method of Claim 531 wherein at least one of the amino acids of P_1 other than β-alanine, when present, is a D-amino acid.

556. (New) The method of Claim 556 wherein Xaa_1 is a D-amino acid, His is a D-amino acid, or both Xaa_1 and His are D-amino acids.

557. (New) The method of Claim 557 wherein all of the amino acids of P_1 other than β-alanine, when present, are D-amino acids.

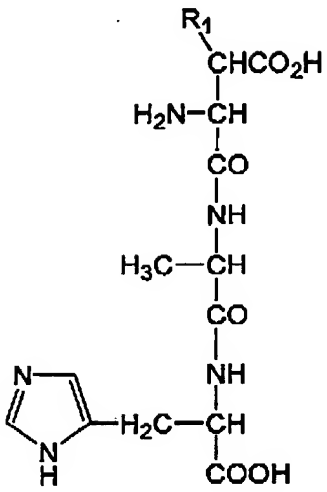
558. (New) The method of Claim 555 wherein at least 50% of the amino acids of P_2 are D-amino acids.

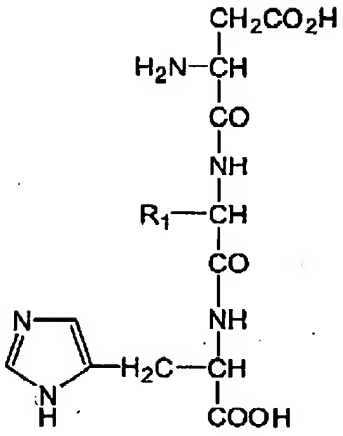
559. (New) The method of Claim 531 wherein at least one amino acid of P_1, at least one amino acid of P_2, or at least one amino acid of P_1 and at least one amino acid of P_2 is substituted with (a) a substituent that increases the lipophilicity of the peptide without altering the ability of P_1 to bind metal ions, (b) a substituent that protects the peptide from proteolytic enzymes without altering the ability of P_1 to bind metal ions, or (c) a substituent which is a non-peptide, metal-binding functional group that improves the ability of the peptide to bind metal ions.

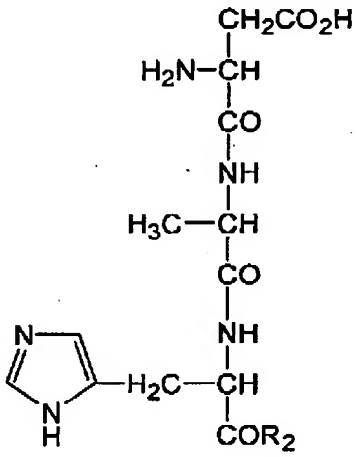
560. (New) The method of Claim 559 wherein the terminal -COOH of P_1-P_2 is substituted to produce $-COR_2$, wherein R_2 is $-NH_2$, $-NHR_1$, $-N(R_1)_2$, $-OR_1$, or $-R_1$, wherein R_1 is an alkyl, aryl or heteroaryl.

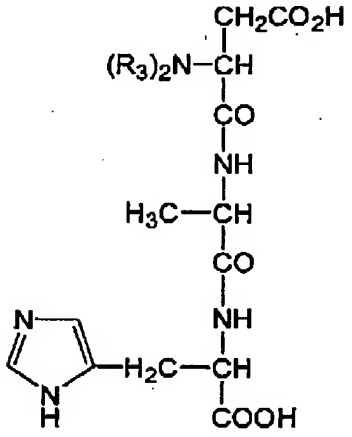
561. (New) The method of Claim 559 wherein n is 0 and P_1 has one of the following formulas:

PAGE 6/11 * RCVD AT 7/26/2004 1:49:36 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/7 * DNIS:8729306 * CSID:3038630229 * DURATION (mm-ss):03-16

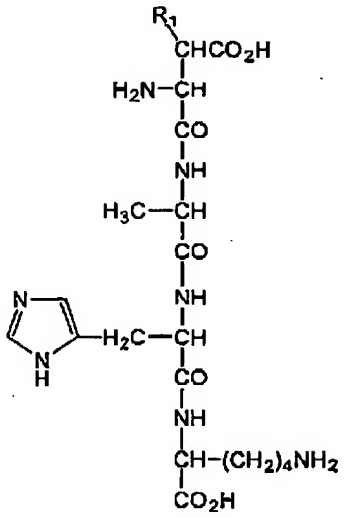


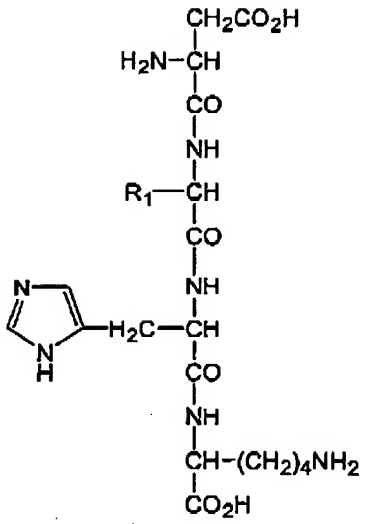


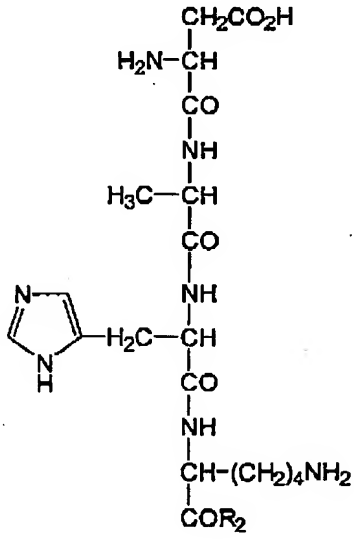


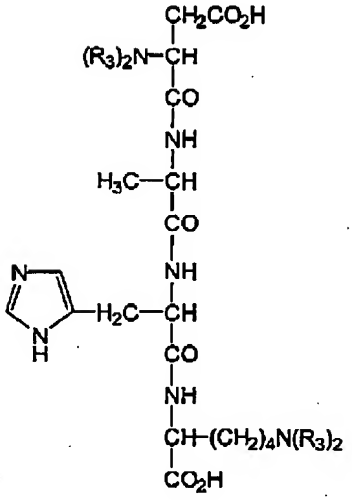


PAGE 7/11 * RCVD AT 7/26/2004 1:49:36 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/7 * DNIS:8729306 * CSID:3038630229 * DURATION (mm-ss):03-16









wherein:

R_1 is an alkyl, aryl, or heteroaryl;

R_2 is $-NH_2$, $-NHR_1$, $-N(R_1)_2$, $-OR_1$, or $-R_1$; and

PAGE 8/11 * RCVD AT 7/26/2004 1:49:36 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/7 * DNIS:8729306 * CSID:3038630229 * DURATION (mm-ss):03-16

R_3 is H, a non-peptide, metal-binding functional group or the two R_3 groups together form a non-peptide, metal-binding functional group.

562. (New) The method of Claim 561 wherein R_2 is $-NH_2$.

563. (New) The method of Claim 531 wherein the method further comprises administering an effective amount of another metal-binding compound in combination with the peptide.

564. (New) The method of Claim 563 wherein the metal-binding compound binds iron.

565. (New) The method of Claim 564 wherein the iron-binding compound is deferoxamine mesylate.

566. (New) The method of Claim 563 wherein the metal-binding compound binds Cu(I).

567. (New) The method of Claim 566 wherein the Cu(I)-binding compound is a peptide.

568. (New) The method of Claim 567 wherein the Cu(I)-binding peptide comprises one of the following sequences:

Met Xaa_4 Met,

Met Xaa_4 Xaa_4 Met,

Cys Cys

Cys Xaa_4 Cys,

Cys Xaa_4 Xaa_4 Cys,

Met Xaa_4 Cys Xaa_4 Xaa_4 Cys,

Gly Met Xaa_4 Cys Xaa_4 Xaa_4 Cys [SEQ ID NO:7],

Gly Met Thr Cys Xaa_4 Xaa_4 Cys [SEQ ID NO:8],

Gly Met Thr Cys Ala Asn Cys [SEQ ID NO:9], or

γ-Glu Cys Gly,

wherein Xaa_4 is any amino acid.

569. (New) The method of any one of Claims 531-568 wherein the angiogenic disease or condition is a neoplastic disease, a connective tissue disorder, psoriasis, an ocular angiogenic disease, a cardiovascular disease, a cerebral vascular disease, hemophiliac joints, an immune disorder, a benign tumor, hypertrophy, endometriosis, polyposis, or obesity.

570. (New) The method of Claim 569 wherein the angiogenic disease or condition is a neoplastic disease.

571. (New) The method of Claim 570 wherein the neoplastic disease is a tumor.

572. (New) The method of Claim 571 wherein the tumor is located in the bladder, brain, breast, kidney, liver, pancreas, lung, cervix, ovary, prostate, stomach, intestines, colon, rectum, or uterus.

573. (New) The method of Claim 570 wherein the neoplastic disease is tumor metastasis.

PAGE 10/11 * RCVD AT 7/26/2004 1:49:36 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/7 * DNIS:8729306 * CSID:3038630229 * DURATION (mm-ss):03-16